Larval Dwarf Green Tree Frogs *Litoria fallax* crushed by trail-bikes

Although mortality to frogs due to crushing by off-road vehicles has been reported from other countries, there are few such reports from Australia. The Dwarf Green Tree Frog *Litoria fallax* (Salientia: Hylidae) is a small arboreal frog widespread in wetlands of the coastal plain and ranges of eastern Australia, south of Cape York Peninsula and north of the border of Victoria (Cogger 2014). There are also extralimital populations of *L. fallax* in and around metropolitan Melbourne, Victoria (Anstis 2013). *Litoria fallax* is frequently locally abundant in swamps and in bulrush (*Typha* spp., Typhaceae) beds, although it has undergone marked decline in recent decades in metropolitan Sydney, New South Wales, mostly due to massive urban residential development and consequent loss of habitat, but also to the practice of local government councils of persistent clearing of *Typha* spp. from streams and water channels (author unpubl. data). This note documents mortality to late larval *L. fallax* due to crushing in their ephemeral pools by illegal trail bike traffic in a reserved area.

Nocturnal wildlife survey was carried out in a 558 ha disturbed remnant dry sclerophyll forest (endangered Cumberland Plain Woodland) with several relatively intact mature patches, on the property of the disused Airservices Australia International Radio Transmitter Station. The property is located between Shanes Park and Wilmot in western metropolitan Sydney. In the course of this survey, observations were recorded in two adjacent drying ephemeral pools. These pools were ~1.5 x 2 m and ~2 x 3 m, both up to ~20 cm depth and formed on a track, at 33.72128°S, 150.79750°E (WGS84 grid), 37 m elevation. Heavy rains over the previous six weeks had formed ephemeral pools in depressions in the unsealed dirt tracks and in low-lying areas, which had been used for reproduction by several species of frog, including *L. fallax*. On 9 March 2012, 11.30 pm (AEST), T_a 21.6°C, 8/8 cc, with occasional drizzle, five larval *L. fallax* nearing metamorphosis (stages 40–42 of Gosner 1960) were found freshly killed, floating on the surface in the pools, with injuries to bodies and tails consistent with crushing. Several fresh tracks from trail bike tyres were noted leading in and out of the pools, which were turbid with suspended silt. Live, apparently uninjured late larval *L. fallax* were also observed in the pools, occasionally breaching the surface for air, but could not be visually censused because of the heavy turbidity. Although public access to the area is nominally restricted and riding of trail bikes prohibited, there is easy ingress at several points, and 2–3 trail bikes were heard active in the area before dusk prior to commencement of survey. Other frogs detected visually via spotlight during survey between 7.00 pm and 11.30 pm were adult *L. fallax*, *L. caerulea*, *L. peronii*, *L. v. verreauxii* (Hylidae), *Limnodynastes peronii*, *L. tasmaniensis* (Limnodynastidae), *Crinia signifera*, and *Uperoleia laevigata* (Myobatrachidae). With the exception of *L. caerulea* all species were heard advertisement calling at various ephemeral pools in the survey area.

Frog mortality has been reported from other geographic regions, due to crushing by the hooves of sheep, e.g. juvenile *Anaxyrus boreas* in Idaho, USA (Bartelt 1998), and cattle, e.g. juvenile and adult *Lithobates luteiventris* in Nevada, USA (Ross *et al.* 1999), and by the wheels of off-road vehicles (COSEWIC 2012; Defenders of Wildlife 2012). However, this appears to be the first Australian report of mortality of late larval frogs due to crushing by the wheels of trail bikes. Trail bike riding in native bushland remnants is a popular recreation for many urban and rural Australians, and frog larvae in small streams and ephemeral pools may be susceptible to crushing by trail bike traffic, including when they are metamorphosing, particularly when ephemeral water bodies start to dry out and riders are more prepared to enter them.

Whilst mortality due to this anthropogenic factor is of low concern for common and widespread species such as *L. fallax*, it would be of high concern for those threatened and vulnerable species with more restricted distributions that breed in ephemeral water bodies. It may require attention and policing by management authorities in National Parks and other reserve areas during the reproductive season.

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Visitation by common native birds to eucalypts on Deakin University Burwood Campus, Victoria

The Burwood Campus of Deakin University is located approximately 15 km from Melbourne's Central Business District. The campus has a variety of plants including eucalypts and grevilleas. *Eucalyptus* species include *E. sideroxylon* (Red Ironbark), *Corymbia maculata* (Spotted Gum) and *E. muellerana* (Yellow Stringy Bark). Many bird species frequent the campus and visit the various plants and I was curious as to whether there would be a difference in the number and types of birds visiting these three eucalypts. I examined three trees of each species at hourly intervals on 5, 6 August 2014, from 8.00 am to 5.00 pm. I focused on four bird species, all native and common: Rainbow Lorikeet *Trichoglossus haematodus,* Noisy Miner *Manorina melanocephala,* Australian Magpie *Cracticus tibicen* and Eastern Rosella *Platycercus eximius.* Each bird belonged to a different foraging guild (Table 1) and I believed that tree visitation would be related to foraging motivation. Both *C. maculata* and *E. sideroxylon* were in flower at the time of my observations.

Over the two days, 54 observations were made for each tree species. The two ground foraging birds, Australian Magpie and Eastern Rosella, were seen only twice in the trees, while 94 Rainbow Lorikeets were seen, most commonly in *C. maculata* (Table 1) and less frequently (but still commonly) in *E. sideroxylon*. Rainbow Lorikeets were not seen to visit *E. muellerana*. The Noisy Miners, although still common, were less frequent visitors than the Rainbow Lorikeet and were observed in each of the three eucalypt species (Table 1).

The Rainbow Lorikeet is a nectarivore and the Noisy Miner feeds on both nectar and insects, so it was not surprising that these species frequented the flowering trees. *Corymbia maculata* flowers from May to September and *E. sideroxylon* from January to September (Williams and Woinarski 1997). *Eucalyptus muellerana* flowers from October to February. Lill (2009) found that eucalypt nectar (and/or pollen) formed 86-97% of the diet of urban Rainbow Lorikeets and considered their year-round presence due